

**International Harmonized Research Activities - Intelligent Transport Systems
Expert Group Meeting
April 8-9, 1997. Rotterdam, The Netherlands**

Minutes

Attendees:

Dr. Ian Noy (Chairman, Transport Canada, Canada)
Mr. Daniel Augello (Renault, France)
Dr. August Burgett (NHTSA, U.S.)
Dr. med. B. Friedel (BASt, Germany)
Mr. Geoff Harvey (Department of Transport, U.K.)
Drs. Pieter Miltenburg (Ministry of Transport, The Netherlands)
Dr. Anthony Ockwell (Federal Office of Road Safety, Australia)
Mrs. Annie Pauzié (INRETS, France)
Dr. Kåre Rumar (Swedish National Road Administration, Sweden)

1. Introduction.

Ian Noy thanked Pieter Miltenburg for hosting the first meeting of the Expert Group.

Ian Noy presented a background document describing the formation of the Expert Group, its charge and scope of effort. In summary, the mandate of the Expert Group over a period of five years is to develop harmonized test procedures to assess driver-vehicle interaction as a means for determining the safety potential of ITS crash avoidance and driving enhancement for in-vehicle systems. The focus is harmonized research as distinct from harmonized regulation. A lengthy discussion ensued concerning the responsibilities of government with respect to vehicle safety assurance and the need to develop strategies for government intervention to control the potentially adverse effects of in-vehicle information, control and communication systems. The discussion also addressed the state of readiness of Human Factors to address the problem, and the changing relationship between governments and the OEM and aftermarket industry¹. It was noted that although there are numerous organizations and committees involved with ITS development and standardization, there is no committee specifically addressing the needs of governments to monitor ITS safety and develop strategies for intervention. The EEVC, for example, has no program of research in ITS.

¹ It was acknowledged that the aftermarket industry may have a substantial market share of ITS products. However, it was agreed not to distinguish between original and aftermarket systems at this stage since, for the most part, the procedures for safety evaluation will be generic.

The proposed collaborative research should be regarded as pre-intervention. That is, procedures developed by the Expert Group could be used in a variety of ways, including possible incorporation in government regulations, promulgation as industry guidelines, and used as the basis for harmonized testing and reporting for consumer information (such as the NCAP program). In general, at the present time, European countries do not favour regulation of ITS.

2. Mandate.

The Expert Group decided to address cross-cutting issues rather than to focus on specific applications such as route guidance or collision avoidance. The need to take a systems approach in which ITS systems are evaluated as part of the overall vehicle system was a major reason for this decision. The Expert Group adopted the following principal goal and objectives of the research.

2.1 Goal:

To develop procedures (including methods and criteria) for the evaluation of safety of in-vehicle information, control and communication systems with respect to human performance and behaviour.

2.2 Objectives

1. Describe the state-of-the-art in safety test and evaluation, including automotive as well as other relevant applications
2. Define measures of safe driving behaviour
3. Define system hierarchical requirements, taking into account system integration issues and consistency of function principles. For example, is there a need to define procedures for assessing systems safety at the subsystem level? Also, can all IVIS systems be subjected to a universal set of procedures or do these need to be tailored to specific functions.
4. Define standard safety benchmarks and criteria
5. Develop an issue tree for system safety analysis and prioritization (e.g., using an expert system approach)
6. Coordinate planned research
7. Facilitate information exchange and joint prioritization of issues
8. Explore issues of interoperability across vehicles and across applications, including issues of system integration, consistency of functionality, etc.
9. Identify knowledge gaps and needs

3. Method of Collaboration.

It was acknowledged that Expert Group has no resources of its own and that collaboration means each party will support and fund its own contribution.

4. Workshop

The Expert Group decided to hold a one-day workshop on Oct. 24, 1997 in conjunction with the ITS World Congress, Berlin. The purpose of the workshop is to consider relevant issues associated with evaluating in-vehicle ITS systems and to assist the Expert Group in developing a workplan to identify the need for and possible approaches to government intervention.

Several possible participants were suggested from different countries. Expert Group members will solicit participants from their own country and work out any necessary arrangements for support. Ian Noy will provide a background description of the workshop for use by Expert Group members.

Format

The workshop will consist of 6 sequential presentations, each followed by in-depth discussion of the topic. A discussant will sum up and provide critical comments identifying similarities and differences in the approaches discussed.

Possible topics of special interest include:

- definition of test scenarios/conditions
- usability testing
- situational awareness
- workload
- comparison of test settings, techniques
- human reliability
- role of theory
- benchmarks of safety

Participants will be asked to relate their remarks to evaluation methods (measures), criteria and safety. Attendance at the workshop will be open to interested delegates; however, it will most likely remain relatively small.

Participants will be requested to prepare a paper prior to the workshop. The paper would be considered for publication in a special issue of the journal, *Human Factors in Transportation* (Lawrence Erlbaum & Associates).

Finance

Participants in the workshop are expected to obtain travel support through the appropriate Government Focal Point.

Action: Members of Expert Group to send suggestions for speakers and topics to Ian Noy. These will be reviewed and a suggested program developed and distributed for approval by committee.

5. Survey

The Expert Group agreed to conduct a survey of relevant work either on-going or that has been completed within the last 5 years. The definition of relevant work includes any study or demonstration that contained test and evaluation elements, or work that specifically set out to develop or validate protocols, procedures or techniques for the evaluation of safety. Individual descriptions of work items should be provided for work items that can stand-alone. That is, a work item may contain several experiments or may be part of a larger program. As long as it can stand alone and is relevant to the goals or objectives of the Expert Group it should be included as a separate item. If it is part of a larger program, the larger program should be identified as well.

Elements to be included:

- Title
- Performing organization, sponsor, primary researchers
- Date of completion or expected completion
- Was this work part of a larger program?
- Goal of the work
- State relevance to safety.
- Indicate whether the work includes measures of success, validation
- Indicate to what extent this work relates to Expert Group objectives, using a scale of 1-5
- Provide a list of literature cited
- Provide executive summary, if available
- Provide reference of work, if published
- Check boxes that describe the work under each main factor
 - Setting: urban, rural, freeway traffic, simulator, modeling, focus group, laboratory (part task), closed track
 - Drivers: random normal, age range, experience, special population (renters), gender, degree of familiarity with environment or vehicle, language, personality
 - Measures: subjective (e.g., workload), objective (e.g., primary performance, collisions), epidemiology
 - Application: indicate extent to which the work may be applicable to test procedures, or specific features

- relative to application
- Degree of experimental control: none, some, complete, mixed
- H to M interaction; manual, voice
- M function: information (including warning), control, communication
- M to H interaction; visual, auditory or tactile

Action: Ian Noy to design a survey form and distribute for approval of Expert Group. Once approved, the survey will be sent to Expert Group and Government Focal Points for completion and return to Ian Noy.

6. Collaboration

The following groups were identified for possible liaison. The minutes will be sent to these groups with a statement of desire for collaboration.

- DG XIII/C/6 (Telematics) Mr. Fotis Karamitsos
- DG VII Mr. Werring and Mr. J. Berry
- DGIII Mr. Henssler
- ECE WP29 - Mr. Meekel
- ISOTC22/WG 8 Mr. F. Hartemann
- ISO/TC204/WG9 & 13 Mr. E. Farber
- HLG Telematics - (*G. Harvey to supply contact*)
- HLG Road Safety (*G. Harvey to supply contact*)
- Joint HLG Task Force (not yet formulated)
- CEN TC 278 chaired by NL - Dick van Vic (*Pieter Miltenburg to supply contact*)
- Ertico Olivier Mosse
- ITS America (*August Burgett to supply contact*)
- ITS Australia (*A. Ockwell to supply contact*)
- ITS Canada
- Vertis
- SAE (*August Burgett to supply contact*)
- PIARC
- OECD Dr. Horn
- APEC - Special Interest Group on ITS - Ockwell
- PREDIT (*D. Augelo to supply contact*)
- ACEA: Telematics Working Group 'H' (*D. Augelo to supply contact*)
- JAMA
- US Car (*August Burgett to supply contact*)
- AAMA (*August Burgett to supply contact*)
- OICEA (*D. Augelo to supply contact*)
- CLEPA (*D. Augelo to supply contact*)
- FCAT Australia (*A. Ockwell to supply contact*)
- FAIM Australia (*A. Ockwell to supply contact*)

- Korea

Action: Persons identified in parentheses above will provide the names, addresses and telephone numbers of the appropriate organizational contact to Ian Noy.

7. Future Meetings:

The next meeting of the Expert Group will take place on Saturday Oct. 25, after the workshop. The meeting will be devoted to formulating a detailed workplan, including objectives, assignments, milestones, timeframes schedule and method for monitoring progress.

Technical visits to relevant organizations will be arranged during 3 or 4 days for the group to follow the meeting. Demonstration of equipment or facilities as part of the site visits will be considered. These will take place in Europe (e.g., Daimler Benz, ZMMC(Centre for Man Machine Systems, MOTIV Program, INRETS, TNO, etc.). An additional option is to invite noted researchers close to these technical sites to attend the technical visit and discuss with the Expert Group areas of mutual interest.

A further meeting of the Expert Group will be scheduled in conjunction with ESV98 in Windsor, Canada. Publication of the results of the survey will be targeted for ESV98.